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Degrees

2006	Ph.D. in Electrical and Computer Engineering, University of New Mexico
2001	M.S. in Computer Science, University of Oregon
1999	B.S. in Mathematics and Computer Science, University of Oregon

Experience

Sept 2006 – present	Technical Staff Member at the Los Alamos National Laboratory Computational Physics and Methods (CCS-2)
June 2001 – Sept 2006	Technical Staff Member at the Los Alamos National Laboratory Advanced Computing Laboratory (CCS-1)
March 2000 – January 2001	Co-founder and lead software architect at Counterclaim.com, Eugene, Oregon
Sept 1999 – June 2001	Research Assistant at the University of Oregon
March 1999 – Sept 1999	Research Assistant at the Los Alamos National Laboratory Advanced Computing Laboratory
March 1997 – March 1999	Research Assistant at the University of Oregon
June 1996 – Sept 1998	Software Engineering Consultant at Blue Cross Blue Shield of Oregon
Sept 1994 – June 1996	Programmer at Infolab Technologies, Inc., Portland, Oregon
June 1994 – Sept 1994	Summer Intern at Portland State University

Honors and awards

2005	National Nuclear Security Administration, Defense Programs Award of Excellence
2004	Los Alamos National Laboratory LAAP Award for Clustermatic-based ASCI Lightning supercomputer
2004	R&D 100 Award as member of the LANL Cluster Research Team for the Clustermatic cluster software suite
2003	Los Alamos National Laboratory LAAP Award for work on 10T "Pink" Linux Cluster
2003	Los Alamos National Laboratory LAAP Award for work on Component Programming Models
2002	National Nuclear Security Administration, Defense Programs Award of Excellence
2001	First place, University of Oregon Department of Computer Science programming contest
1999	Graduated with departmental honors, University of Oregon
1996	Undergraduate Physics award, University of Portland

Professional societies

Sigma Xi, Full Member
American Physical Society (APS)
American Mathematical Society (AMS)
Society of Industrial and Applied Mathematics (SIAM)
Institute of Electrical and Electronics Engineers (IEEE)

Publications

Aroon Nataraj, Alan Morris, Allen D. Malony, Matt Sottle, Sameer Shende (2007). "The Ghost in the Machine: Observing the Effects of Kernel Operation on Parallel Application Performance." Proceedings of Supercomputing 2007, Reno, Nevada.

A. Nataraj, M. Sottile, A. Morris, A. Malony, and S. Shende (2007). "TAUoverSupermon: Low-Overhead Online Parallel Performance Monitoring." Proceedings of EuroPar 2007, Rennes, France.

R. Minnich, M. Sottile, S. Choi, E. Hendriks, and J. McKie (2006). "Right-Weight Kernels: an off-the-shelf alternative to custom Light-Weight Kernels." Special Issue of the ACM Operating Systems Review Journal, 2006.

M. Sottile, C. Rasmussen, and R. Graham (2006). "Co-Array Collectives: Refined Semantics for Co-Array Fortran.". In V. Alexandrov, D. van Albada, P. Sloot, and J. Dongarra, editors, International Conference on Computational Science (ICCS 2006), LNCS. Springer, 2006.

M. Sottile, V. Chandu, and D. Bader (2006). "Performance analysis of parallel programs via message-passing graph traversal.". Proceedings of IPDPS 2006, Rhodes Island, Greece

K. Borozdin, et. al. (2005). "Cosmic-ray muon tomography and its application to the detection of high-Z materials" Proceedings of the 46th Annual Meeting for the Institute of Nuclear Materials Management, 2005.

C. Rasmussen, M. Sottile, C. Rickett (2005). "A Gentle Migration Path to Component-Based Programming" Proceedings of the International Conference on Parallel Computational Fluid Dynamics (PCFD) 2005, Washington, D.C.

C. Rickett, S. Choi, C. Rasmussen, M. Sottile (2004). "Rapid Prototyping Frameworks for Developing Scientific Applications: A Case Study" 2004 LACSI Symposium, Santa Fe, NM.

Sottile, Matthew J. and Minnich, Ronald G. (2004). "Analysis of microbenchmarks for performance tuning of clusters" Cluster 2004, San Diego, CA.

C. Rasmussen, M. Sottile, J. Nieplocha, R. Numrich, E. Jones (2004). "Co-Array Python: A Parallel Extension to the Python Language" EuroPar 2004, Pisa, Italy.

S. Choi, E. Hendriks, R. Minnich, M. Sottile, G. Watson (2004). "Pink: A 1024-node Single-System Image Linux Cluster", HPC Asia 2004, Myrinet Users Group Workshop, Tokyo, Japan.

A. Malony, S. Shende, N. Trebon, J. Ray, R. Armstrong, C. Rasmussen, M. Sottile (2003). "Performance Technology for Parallel and Distributed Component Software", Concurrency & Computing: Practice and Experience, special issue on Grid Performance.

R. Armstrong, G. Kumfert, L. Curfman McInnes, S. Parker, B. Allan, M. Sottile, T. Epperly, T. Dahlgren (2003). "The CCA Component Model for High-Performance Scientific Computing" Concurrency and Computation: Practice and Experience.

C. E. Rasmussen, M. J. Sottile, S. S. Shende, and A. D. Malony (2003). "Bridging the language gap in scientific computing: the Chasm approach", Concurrency and Computation: Practice and Experience.

S. Shende, A. D. Malony, C. Rasmussen, M. Sottile (2003). "A Performance Interface for Component-Based Applications" Proc. International Workshop on Performance Modeling, Evaluation, and Optimization of Parallel and Distributed Systems, IPDPS'03, Nice, France.

Sottile, Matthew J. and Minnich, Ronald G. (2002). "Scale up your monitoring with Supermon" IEEE Task Force for Cluster Computing Newsletter, Fall 2002. Vol. 4, No. 1.

Sottile, Matthew J. and Minnich, Ronald G. (2002). "Supermon: A high-speed cluster monitoring system" Proceedings of Cluster 2002, Chicago, IL.

Choi, S., Hendriks, E., Minnich, R., Sottile, M., Marks, A. (2002). "Life with Ed: A Case Study of a LinuxBIOS/BProc Cluster" 16th Annual International Symposium on High Performance Computing Systems and Applications, Moncton, NB, Canada.

A. D. Malony, J. E. Cuny, J. L. Skidmore, M. J. Sottile (2000). "Computational experiments using distributed tools in a Web-based electronic notebook environment". Future Generation Computer Systems, Volume 16, Issue 5, March 2000.

Sottile, Matthew and Malony, Allen. (1999). "INTERLACE: An Interoperation and Linking Architecture for Computational Engines" Proceedings of EuroPar 99, Toulousse, France, pp.135-138.

A. Malony, J. Skidmore, and M. Sottile. (1999). "Computational Experiments using Distributed Tools in a Web-based Electronic Notebook Environment" Proceedings of HPCN Europe '99, Amsterdam, The Netherlands.

J. L. Skidmore, M. J. Sottile, J. E. Cuny, and A. D. Malony (1998). "A Prototype Notebook-Based Environment for Computational Tools" Proceedings of Supercomputing '98, Orlando, FL.

Thesis

Matthew J. Sottile, "A Measurement and Simulation Methodology for Parallel Computing Performance Studies". PhD Thesis, Department of Electrical and Computer Engineering, University of New Mexico, 2006. Advisor: Dr. David A. Bader

Matthew J. Sottile, "The Design Of A General Method For Constructing Coupled Scientific Simulations". Masters Thesis, Department of Computer and Information Science, University of Oregon, 2001. Advisor: Dr. Janice E. Cuny

Matthew J. Sottile, "A Framework for Building High Performance Computational Servers Using HPC++". Undergraduate Thesis, Department of Computer and Information Science, University of Oregon, 1999. Advisor: Dr. Allen D. Malony

Posters

Thomas Asaki, Matthew Sottile. "DEEPBLUE: A component-based software toolkit for image and shape metrics". CCS Division Review Poster Session, June 1, 2005.

Talks

M. Gokhale and M. Sottile (2006). "Program Analysis Tools for Application Specific Architectures.", PACT 2006.

M. Gokhale and M. Sottile (2006). "Program Analysis Tools for Application Specific Architectures.", HPEC 2006.

"Comparing Simulated and Experimental Images via Shape Metrics", Algorithms for Image Analysis in Scientific Data Mini-Symposium, SIAM Imaging Science 2006 conference, Minneapolis, Minnesota.

"Exploring performance sensitivity of distributed memory parallel programs to system interference.", Invited speaker, SIAM PP'06 conference, February 2006.

"Right weight kernel: Introduction, concepts, and current work.", June 9, 2005. DOE FastOS PI Meeting, Rockville, MD.

"CCAIN: Essential CCA", April 28, 2005. CCA Quarterly Meeting, Lincoln City, Oregon.

"Analysis of microbenchmarks for performance tuning of clusters.", March 25 2005 colloquium, University of New Mexico, Electrical and Computer Engineering Department.

Co-presenter and author, half day tutorial on "Python for High Productivity Scientific Programming", Los Alamos National Laboratory, November 2004.

Co-presenter and author, full day tutorial on "Clustermatic" software suite, Supercomputing 2004, Pittsburgh, PA.

Co-presenter and author, full day tutorial on "Python for High Productivity Scientific Programming", LACSI 2004, Santa Fe, NM.

Co-presenter and author, full day tutorial on "Clustermatic" software suite, LACSI 2004, Santa Fe, NM.

Co-presenter and author, full day tutorial on "Clustermatic" software suite, LCI 2004, Austin, TX.

"Formal methods for component design", Invited talk, CCA meeting, Spring 2004, Boulder, CO.

"Developing a Formal Representation for Component Design Patterns", SIAM PP'04 Conference, February 2004, San Francisco, CA.

Co-presenter and author, full day tutorial on "Clustermatic" software suite, LACSI 2003, Santa Fe, NM.

"PAWS: The parallel application workspace", Invited talk, ACTS Workshop 2003, University of California, Berkeley

"PAWS: The parallel application workspace", Invited talk, ACTS Workshop 2002, Lawrence Berkeley National Laboratory

"Supermon: Scalable cluster monitoring", Nov 5. 2002 colloquium, University of New Mexico, Computer Science Department.

"PAWS: The parallel application workspace", Invited talk, ACTS Workshop 2001, Lawrence Berkeley National Laboratory

"Supermon: A high-speed cluster monitoring system", Cluster 2002, Chicago, IL.

"INTERLACE: An interoperation and linking architecture for computational engines", Europar 1999, Toulouse, France.

"Science and Supercomputing", Student colloquium, Los Alamos National Laboratory, July 1999.

"Supermon: A high-speed cluster monitoring system", Los Alamos National Laboratory, Advanced Computing Laboratory Colloquium, January 2002.

"Automated, compiler based methods for coupling parallel simulations", Los Alamos National Laboratory, Advanced Computing Laboratory Colloquium, March 2001.

Professional activities

Mentor for 2007 LANL DDMA Data Sciences Summer School, students Jennifer Treanor, Sharif Ibrahim, Stephen DeSalvo. Project: Image and video processing of C. elegans motion for behavior analysis and neural model verification. Data provided by and work performed in collaboration with Dr. Shawn Lockery, University of Oregon, Department of Biology.

Program committee member for Performance Evaluation and Measurement topic area for HPCC 2007, Houston, TX.

Industry mentor for 2006 UCLA IPAM Research in Industrial Projects for Students (RIPS) program. Project title : "Robotic Path Planning and Visibility with Limited Sensor Data". Team : David Galkowski, Christine Lee, Gitendra Malla, Jennifer Treanor.

Program committee member for the 2nd International Conference on High Performance Computing and Communications (HPCC-06), Munich, Germany.

Organizing committee for 2nd OSIHPA (Operating System Interference in High Performance Applications) workshop at PACT 2006 conference, Sept. 2006, Seattle, Washington.

Organizer for "Algorithms for Image Analysis in Scientific Data" Mini-Symposium, SIAM Imaging Science 2006 conference, Minneapolis, Minnesota.

Reviewer for IEEE Transactions on Parallel and Distributed Systems.

Reviewer for IEEE Transactions on Computers.

Mentor for LANL summer students Vaddadi Chandu (UNM/GA Tech), John Seiffertt (UMN), and Benjamin Cook (UCLA), Summer 2005.

Industry mentor for 2005 UCLA IPAM Research in Industrial Projects for Students (RIPS) program. Project title : "Building Super-Resolution Imaging Systems Using Low Resolution Cameras". Team : Jennifer Rees, Rajendra Appama, Mihai Bailesteanu, Bruno Galerne.

Organizing committee for OSIHPA (Operating System Interference in High Performance Applications) workshop at PACT 2005 conference, Sept. 2005, St. Louis, Missouri.

Participant at UCLA IPAM 2005 summer school on Intelligent Extraction of Information from Graphs and High Dimensional Data.

Program committee member for Compframe 2005, Workshop on High Performance Component Models and Frameworks. June 2005, Atlanta, Georgia.

Program committee member for HIPS 2004 workshop, IPDPS 2004 conference, Santa Fe, NM.

Co-organizer for "Design Patterns for High Performance Component Architectures" mini-symposium, SIAM PP'04 Conference, San Francisco, CA, February 2004.

Participant, "SCaLeS: A Science-Based Case for Large-Scale Simulation" workshop, Arlington, VA., June 2003.